

Notice of Allowability

Application No.

10/808,474

Examiner

Charles Chow

Applicant(s)

NAKAO ET AL.

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 10/30.2006.
2. ☒ The allowed claim(s) is/are 2-12 and 15-36.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted:
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>11/30/2006</u> : |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

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Detailed Action

1. This office action is for amendment received on 10/30/2006.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment has been given from attorney office, by Tomoki Tanida in a telephone interview on 11/30/2006, for amending the independent claims 12, 25-27, 30 36.

Attorney has authorized examiner to amend the **claims 12, 25-27, 30, 36** as follows:

In line 7 of claim 12, after the words "based on the", inserting the word ---updated---.

In line 10 of claim 12, after the words "plurality of antennas", inserting the words ---without updating the transmission weight factor---.

In line 6 of claim 25, after the words "based on the", inserting the word ---updated---.

In line 9 of claim 25, after the words "plurality of antennas", inserting the words ---without updating the transmission weight factor---.

In line 1 of claims 26, 27, 30, after the words "a program", inserting the word ---in a storage medium---.

In line 1 of claim 36, after the words "a program", inserting the word ---in a storage medium---.

In line 7 of claim 36, after the words "based on the computed", inserting the word ---updated---.

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In line 9 of claim 36, after the words "plurality of antennas", inserting the words
---without updating the transmission weight factor---

Allowable Subject Matter

3. The following is an examiner's statement of reasons for allowance:

Claims 2-12, 15-36 are allowable over the prior art of record. The prior arts fail to teach the allowable features, singly, particularly, or in combination.

Applicant has canceled the rejected claims 1, 13-14 [page 22 of applicant amendment], & other claims were indicated to be allowable in the previous office action; Aug./9/2006.

The prior arts fail to teach the features in independent **claims 2, 3, 6, 15, 16, 19, 26, 27, 30, a predicted power computing unit** which computes, from the candidate of the transmission weight factor and the received response characteristic,

a correction unit which corrects the candidate transmission weight factor; **a predicted receiving power value in the terminal apparatus**, computing, from the corrected candidate of transmission weight factor & the received response characteristic, a predicted receiving power value; a storage stores predicted receiving power value;

a setting unit which **updates, memory, and sets the transmission weight factor** to the candidate, the corrected candidate, the corrected first candidate, of transmission weight factor computed by said transmission weight factor computing unit, by updating a second candidate of transmission weight factor, **if a difference** between a **predicted receiving power value in the past** stored in said storage **and the predicted receiving power value computed** by said predicted power computing unit **is less than a predetermined threshold value** and which sets **without updating** the transmission weight factor **if the difference thereof is greater than or equal to the predetermined threshold value**; and a transmitter which transmits signals to the terminal apparatus based on the transmission

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weight factor set by said setting unit, for a program executable by computer, including the functions of above, or a radio apparatus including a received response characteristics computing unit, a transmission weight factor computing unit; & together with the features of a computer executable program for claims 26, 27, 30.

the prior arts fail to teach the features in independent **claims 12** (a radio apparatus), **claim 25** (a transmission method), & **claim 36** (a computer executable program), the **measuring unit, measures** the magnitude of **variation in power** of the received signals;

a transmission weight factor computing unit which computes, from the received signals, a transmission weight factor for the terminal apparatus; and

a transmitter which transmits signals, based on the **updated** transmission weight factor computed by said transmission weight factor computing unit, **via the plurality of antennas** if the magnitude of **variation in power** measured by said measuring unit is **less than a predetermined threshold** value and

transmits signals via one of the plurality of antennas **without updating the transmission weight factor** if the magnitude of **variation in power** measured by said measuring unit **is greater than or equal to a predetermined threshold** value, for a radio apparatus including a receiver receives signals via plurality of antennas, a measuring unit measures the magnitude of variation in power of received signals, a transmission weight factor computing unit;

The closest prior art **Hiramatsu (US 6,512,917 B1)** teaches, in Fig. 5, the 315-316 of the receiving portion & gain control 321, for providing information to transmission weight calculate 322 in order to generate transmit weight, & having the gain controlling circuit 321 for controlling the gain of the transmission power, in such a manner that the power of the received signal becomes constant at the other communication part [col. 6, lines 54-58 & col.

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6 lines 40-67; col. 2, line 16 & lines 13-29, abstract]. Hiramatsu fails to teach the above allowable features.

Kohno et al. (US 6,763,062 B1) teaches a transmission method [Fig. 2-7, abstract] based on a received signal from terminal station N3, N11 [Fig. 1], the microprocessor 57 calculates transmit weight values based no the received level monitored by 55 in col. 6, lines 19-34; the detecting the variation in receiving condition in col. 3, lines 1-16] and the transmitting a signal by using recalculated transmission weight, to alter amplitude & phase of antenna element, when the monitored received signal falls below a predetermined threshold [col. 6, lines 4-34, abstract], the transmitter 50 of base station transmitting signal terminal based on the stored weight values read from storage table 49 for the amplitude & phase weighting factor, as the weight factor has been used so far from storage table 49 [col. 5, line 58 to col. 6, line 3], but fails to teach above allowable features.

Chung et al. (US 7,079,867 B2) teaches, in Fig. 4, the base station calculates the transmitting weight factor at 425 based on the forward fading power calculator 422, angle array vector calculator 423 from the information provided by the rake receiver [col. 12, lines 36-51 & col. 6, lines 46 to col. 7, line 3, abstract], but fails to teach the above allowable features.

The dependent claims are also allowable due to their dependency upon their independent claims and comprising additional claimed features associated to the features of the independent claims.

Other cited prior arts in below were also considered, but they fail to teach the above allowable features.

Whinnett (US 6,192,256 B1), Miya (US 7,020,455 B1), Kikuchi (US 2002/0070,892 A1), Miyoshi (US 20020151,301 A1), Hamalainen et al. (US 2005/0260,954 A1), Ide et al.

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(Us 2003/0148,744 A1), Harrison et al. (US 6,434,366 B1), Matsuoka et al. (Us 2004/0235,421 A1), Lim (US 6,049,307), Ozluturk et al. (US 6,940,840 B2), Yamaguchi et al. (US 2002/0039,912), Lomp (US 6,983,009 B2), Hwang et al. (2004/0213,353 A1), Miyoshi (Us 2005/0117,520 A1), Doi (US 2005/0239,507 A1), Hayashi et al. (US 2004/0240,410 A1).

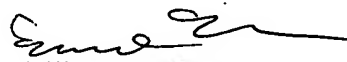
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow C.C.

November 30, 2006.


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JULY 2007/ PATENT EXAMINER
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